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Roads and Crossings Module
for the
Timber Harvest Review Component

California Department of Fish and Game
Northern California – North Coast Region
Interior Timberland Planning Team

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Resource Issue

Timber harvesting plans (THPs) usually contain numerous roads (including landings) and watercourse crossings. Roads and crossings are usually the primary contributor of aquatic sedimentation from a THP as they hydrologically connect large areas of exposed mineral soil (roads) to watercourses and contain high risks for sediment input by depositing soil at crossings where the channel has an unnatural constriction. Many existing roads and crossings are relics of past practices, technologies, and forest practices, and pose a higher risk.

The risk to aquatic resources from roads and crossings is dependant upon their location, construction, condition, and maintenance. Roads and crossings that are not properly located, constructed, or managed pose a greater risk to aquatic habitats by increasing sediment loads, altering channel morphology and destabilizing streambanks, modifying drainage networks, and creating barriers to fish migration. Species that may be adversely affected include anadromous salmonids such as coho salmon, chinook salmon, and steelhead, amphibians, and other aquatic species, many of which are listed as threatened or endangered under State or Federal law.

Goal

- Reduce impacts to aquatic resources and habitats from roads, landings, and watercourse crossings through the review of THPs

Objectives

- Make sure THPs meet the Forest Practice Rules (FPRs) crossing requirements for 100 year flow capacity (including sediment and debris), diversion potential, and fish passage
- Make sure THPs meet the FPR road requirements for design, hydrologic disconnection, erosion control, and riparian function

- Recommend mitigation or abandonment of roads and landings in WLPZs so they do not impair riparian function and aquatic health
- Meet the landowners transportation system objectives
- Provide incentives for landowners to participate in landscape planning efforts regarding roads and crossings
- Conduct active- and post-harvest monitoring to determine the implementation and effectiveness of mitigations

Strategic Plan

Plans are selected for intensive review of aquatic resource issues based on the presence of anadromous fish or threatened/endangered species, number of crossings, type of crossings, and location of roads and landings (i.e., in riparian zones). Also, companies that have a road management plan that is acceptable to the Team and/or a programmatic Streambed Alteration Agreement with the Department of Fish and Game will likely receive streamlined review. The Team also puts a high priority on requests by the California Department of Forestry and Fire Protection (CDF) to evaluate specific problem sites. The purpose of the Team's review of THPs is to identify and evaluate resource risks and recommend mitigations that reduce these risks to a level that is less than significant.

When reviewing a specific plan, information regarding new and upgraded roads and crossings are usually incorporated in the plan. However, information on existing transportation facilities may be absent. Prior to conducting the field review all relevant plan information is reviewed, including culvert sizing methods, design and construction information, erosion control and mitigation, associated 1603 agreement information, in lieu practices, and an appurtenant road map. Appurtenant roads are subject to FPR regulation and therefore Team review. Prior to starting the field review the appurtenant road information is verified to assure completeness of the review.

The field review consists of assessing most new and existing road segments and crossings and making recommendations for each site as needed. Roads and landings are assessed for existing or potential erosion (rills, gully's, ruts, etc.), surfacing, location, cut- and fill-slope stability, inside ditch function, and drainage slope. Crossings are assessed for correct type (culvert, bridge, temporary, etc.), fish passage, erosion, culvert condition (shot-gunned outlet, rustline, fill percolation, etc.) and sizing, watercourse classification, and diversion potential. Mitigation is discussed in the field and usually included in a pre-harvest inspection report. If mitigation is included in CDF's preharvest inspection report (PHI) report and the RPF concurred in the field, the mitigation may not be included in a PHI report. It should be noted that mitigation is generally based on the "Handbook for Forest and Ranch Roads" by Weaver and Hagans, 1994.

All mitigations should consider amount of use, seasonal use status (temporary or permanent), and landowner objectives. Roads and landings that are located in riparian

zones or unstable areas may be candidates for abandonment. For crossings, natural bottoms are preferred on fish bearing (Class I) watercourses and rocked fords are preferred on watercourses with little flow during the time of use.

The continuous THP review of transportation systems may provide an incentive for the timber company to adopt a road management plan or programmatic Streambed Alteration Agreement pursuant to Fish and Game Code Section 1603 (see the Programmatic Streambed Alteration Agreement Module). These would address roads and crossings prior to THP submission and streamline THP review.

Monitoring

Monitoring of timber harvest activities is a key tool to determine if problems exist with implementation, verifying the effectiveness of recommendations, and supporting landscape planning efforts. The specific monitoring processes and procedures are currently being developed by the Team. Currently, recommendations are monitored for implementation. Roads and crossings are physically checked for consistency with Team recommendations. Field forms have been developed to aid in assessment and to reduce time spent monitoring. Photos will be taken at each site and labeled with a site name or number and attached to the field forms. Problems will be discussed with the RPF or LTO as appropriate. A summary report may also be compiled and a copy provided to the RPF if requested. This information will be used to document implementation, track common problems, and improve Team recommendations.

Adaptive Management

As new information and technology regarding road and crossing construction and design become available, the Team will incorporate this information to refine recommendations. Updated design standards and recommendations will more effectively protect and conserve aquatic resources.

Measures of Success

Success will be measured by the extent to which the following are met:

- THP risks to aquatic resources are minimized through implementation of FPRs related to roads and crossings
- THPs address road and crossing impacts to riparian function
- The landowners transportation system goals are met
- The Team's landscape planning efforts are supported